

To: Monahan, Peter[Monahan.Peter@epa.gov]
From: Ismert, Peter
Sent: Mon 8/10/2015 1:45:10 PM
Subject: FW: Map
[Animas Project Summary.xlsx](#)
[Upper Animas Watershed Plan \(2013\) - Part 1.docx](#)
[Upper Animas Watershed Plan \(2013\) - Part 2.docx](#)
[Upper Animas NPS Mine Projects.pdf](#)
[Animas High Priority Mine Adits and Waste Sites Tables.docx](#)
[DRAFT Timeline for Upper Animas 9-29-14.docx](#)

From: Pate - CDPHE, Bonie [mailto:bonie.pate@state.co.us]
Sent: Friday, August 07, 2015 5:04 PM
To: Ismert, Peter
Subject: Fwd: Map

Hi Peter, In case your are getting questions about the Gold King...

Have a good weekend.

----- Forwarded message -----

From: **Pate - CDPHE, Bonie** <bonie.pate@state.co.us>
Date: Fri, Aug 7, 2015 at 2:54 PM
Subject: Re: Map
To: Nicole Rowan - CDPHE <nicole.rowan@state.co.us>, "Pfaltzgraff - CDPHE, Patrick" <patrick.j.pfaltzgraff@state.co.us>, Tamara Allen - CDPHE <tamara.allen@state.co.us>
Cc: Aimee Konowal - CDPHE <aimee.konowal@state.co.us>, Andrew Ross - CDPHE <andrew.ross@state.co.us>, Lucia Machado - CDPHE <lucia.machado@state.co.us>, Matt Kovach - CDPHE <matt.kovach@state.co.us>, Christa Trendle - CDPHE <christa.trendle@state.co.us>

Hello all,

Attached is some initial mine reclamation information for the Upper Animas. In

summary, the Division has been involved in working with local partners in the watershed since the early 1990's. We have funded three projects in Cement Creek and other projects in neighboring legacy mining impacted tributaries. Including all the studies we have funded a total of 28 projects for approximately \$2,644,000. I've pulled a map of the project sites from the watershed plan update and attached as a PDF. We are still fine-tuning this map of nonpoint source sites as well as our statewide map at the moment. DRMS may also have a GIS coverage available that includes more projects/funding sources.

In terms of targeting projects and progress in improving water quality, this is discussed in much more detail in the attached watershed plan update done in 2013. Peter Butler is the primary author. Attached is the list of priority sites in the watershed with yellow highlighting indicating completed projects (the Gold King now tops the list). Much progress has been made, but it has not been feasible to address many of the sites for a variety of technical, financial and logistical reasons. The water quality improvements seem to be most promising in Mineral Creek (watershed plan includes more detail). I've also attached a recent version of their timeline that was created as part of the watershed plan update to give you an idea of how the collaborative efforts are being implemented.

The following watershed plan excerpt describes the overall water quality challenges in Cement Creek where the Gold King Mine release occurred...

"The biggest changes have occurred in upper Cement Creek in the vicinity of the old town site of Gladstone. In the early 1990's, the American Tunnel, located at Gladstone, provided access to the Sunnyside mine workings, by far the largest hardrock mine in the Animas River Basin. In 1991, the mine was shut down and reclamation began. As part of its reclamation plan, and under a consent decree with WQCD, Sunnyside Gold Corporation installed multiple bulkheads in the American Tunnel and in numerous other locations throughout the mine workings. Over several years, the bulkheads backed up groundwater creating a mine pool in the workings at least 1,000 feet deep. With minimal drainage through the American Tunnel, the groundwater table rose and groundwater began to surface in new locations. While drainage from the American Tunnel dropped from 1,600 gallons per minute (gpm) to about 100 gpm, drainage from other mines in the area greatly increased, starting around 2003. Overall, mine drainage to Cement Creek changed from having 1,600 gpm of *treated* discharge to having 600 – 800 gpm of untreated discharge. The increase in metal loading due to the additional untreated discharge can be seen at least 40 miles downstream in the Animas River."

Please let me know if I can be of further assistance.

Bonie